tures in its dorsal wall, and give off branches to the outer face of the lung, representing the ectobronchial system of birds. The orifices with which the surfaces of all these canals, except the anterior half of the mesobronchium, are thickly set, lead into depressions, which are often so deep as to become cylindrical passages, simulating the parabronchia of birds.

Thus, notwithstanding all the points of difference, there is a fundamental resemblance between the respiratory organs of Birds and those of Crocodiles, pointing to some common form (doubtless exemplified by some of the extinct Dinosauria), of which both are modifications.

3. Contributions to the Anatomy of Passerine Birds.—Part VI.[1] On *Xenicus* and *Acanthisitta* as types of a new Family (*Xenicidæ*) of Mesomyodian Passeres from New Zealand.

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A few months ago I received, through the kindness of my friend Prof. Jeffrey Parker, of the University of Otago, New Zealand, a small collection of birds in spirit from that country, which included most of the peculiar forms of Passeres found there. Amongst them were single specimens of *Xenicus longipes* and *Acanthisitta chloris*, the examination of which has proved to be of especial interest.

The genus *Xenicus* was founded by the late Mr. G. R. Gray [2] for the reception of the *Motacilla longipes* of Gmelin [3], Lafresnaye having some twenty years previously established *Acanthisitta* for Sparrman's *Sitta chloris* [4].

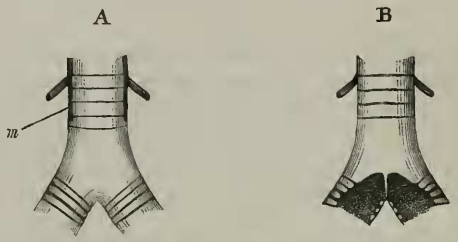
Subsequent ornithological writers have pretty unanimously assigned both these forms to the "Certhiidæ" or their immediate neighbourhood, in company with *Sitta*, *Sittella*, and their allies. The peculiar structure of the tarsus in *Xenicus* first induced me to examine these birds more closely, with the unexpected result that I find that the two genera in question are true Mesomyodian forms, and therefore in no intimate degree related to such Oscines as those just mentioned.

The subjoined drawings of the syrinx of *Xenicus*—with which in all points *Acanthisitta* appears to agree in every essential respect—will show that it has none of the complex nature of that organ in the Oscines, the thin lateral tracheal muscle terminating on the upper edge of a somewhat osseous box formed by the consolidation of the last few tracheal rings, and there being no other intrinsic

[1] For Part V. *vide antea*, p. 544.
[2] Ibis, 1862, p. 218.
[3] Rev. Mag. Zool. 1842, Ois. pl. xxv
[4] Mus. Carls. fasc. 2, no. 33.

syringeal muscle whatsoever. The box has a well-developed antero-posterior pessular piece. The bronchial rings are throughout of quite simple form, and are separated by but narrow intervals. None are modified in form to serve for the insertion of a vocal muscle, as the latter terminates higher up, as already described, on the tracheal box, and therefore quite out of the region of the bronchi.

The lateral position of the single syringeal muscle is that characteristic of all the Mesomyodian Passeres, though in most of these it terminates on one of the bronchial rings, and not, as in the birds under consideration, on the sides of the trachea. This may easily be seen by comparing the accompanying figures of *Xenicus* with the



Syrinx of *Xenicus longipes*, much enlarged.

A. From in front. B. From behind.

m. Lateral tracheal muscle.

beautiful series given by Johannes Müller of the syrinx of many of the Neotropical Mesomyodi [1], with those of Garrod of *Pitta* [2], or my own of *Eurylæmus*, *Cymbirhynchus* [3], and *Philepitta* [4]. In fact it resembles rather that of *Todus*, as lately described and figured by myself [5]. Externally the non-oscine nature of *Xenicus* and *Acanthisitta* is at once proclaimed by the structure of their wings, which have a "first" [6] (tenth) primary nearly as long as the preceding one, and by the non-bilaminate tarsus. The latter is covered almost completely by a single large scute, with only some very obsolete traces of transverse division below, whilst behind its edges are contiguous for the greater length of the tarsus, leaving only small areas at each end of that bone, which are covered by very small scutellæ of irregular form. The digits are slender and compressed, the foot being slightly syndactyle by the union of the fourth toe to the third for the greater part of its two most basal joints. The tail is short and weak; and there are only ten rectrices in each of my specimens. As there is no evidence of a pair more having been present, this number

[1] Vocal Organs of Passeres: Garrod's ed., Oxford, 1878.
[2] Coll. Papers, pl. xxvi.
[3] P. Z. S. 1880, pp. 384, 385. [4] *L. c.* p. 389. [5] *Antea*, p. 444.
[6] Sundevall is in error in assigning to these birds only nine remiges (Tentamen, p. 47).

of tail-feathers must be considered to be that normal in the present family, twelve being that universal, with a few isolated exceptions, in all other Passeres.

In all other points, *Xenicus* and *Acanthisitta* conform to the general Passerine type. There is no trace of a plantar *vinculum*. The *tensor patagii brevis* has the peculiar arrangement characterizing the Passeres, only slightly masked by the muscular fibres somewhat concealing the two superimposed tendons, as is frequently the case in the short-and-rounded-winged forms of the group. The *gluteus primus* is well-developed. The tongue is lanceolate and horny, with its apex somewhat frayed out and its base spiny. The main artery of the leg is the sciatic. The sternum has a single pair of posterior notches and a bifid manubrium. In the skull the nostrils are holorhinal, the vomer broad and deeply emarginate anteriorly, the maxillo-palatines slender and recurved.

As regards the affinities of the Xenicidæ, the "haploophone" form of their syrinx, combined with the complete loss of a vinculum, shows that it is only with the Pipridæ (including the Cotingidæ), Tyrannidæ, Pittidæ, and Philepittidæ that they can be compared. From all of these they differ markedly, however, in the number of rectrices, the ocreate tarsus, and the nature of the syrinx, the latter never having the form of a complete bony box, and never lacking a bronchial "intrinsic" muscle in any of the families just enumerated. The Pittidæ they approach somewhat in their general *facies*, short tail, and long tarsus, though the tarsal scutellation is different in the two forms.

The Pittidæ are also, it is interesting to note, the only other family of Mesomyodian Passeres that enters the Australian region, though they have not extended their range to New Zealand. I know at present of no other Australian Passerines that can be considered allied to the Xenicidæ; nor are there apparently any other forms than the two here described present in New Zealand itself, *Certhiparus* and *Miro* both being, as well as *Clitonyx* [1], Oscines of the normal type.

4. On *Trichina spiralis*. By Prof. Owen, C.B., F.R.S., F.G.S., &c.

[Received June 10, 1882.]

The admission, kindly accorded by the Publication Committee, of my paper on *Trichina spiralis* (1835) to the first volume of the 'Transactions of the Zoological Society of London,' leads me to submit a few observations on subsequent references that have appeared in print on the subject of that paper. The general impression so produced is indicated by the following definition by the late lamented "Académicien," Littré, in his admirable 'Dictionnaire de la Langue française:'—"Trichine, s. f. Nom générique d'un helminthe nématoïde, le *Trichina spiralis*, découverte par Hilton et décrit par R. Owen."

[1] *Vide antea*, p. 544.